Discovery Activities

BROOKHAVEN NATIONAL LABORATORY
PORTAL TO DISCOVERY™

Adventures in Learning at Brookhaven National Laboratory

A visit to BNL's Science Learning Center will excite and engage students. Young scientists can enjoy discovery-based, hands-on learning experiences centered on a variety of scientific principles.

Students can:

- Build circuits and generate electricity
- Become an engineer and create unique structures
- Experience sound waves traveling through different states of matter
- Investigate properties of light through reflection and refraction
- Experiment with a prototype MagLev car

The **PORTAL TO DISCOVERY™** *is a partnership between Brookhaven National Laboratory and the Long Island Matrix of Science and Technology*

Discoveries in Science

- Grades 1-6
- 30 minutes per activity
- Choose three activities
- Maximum three classes with 30 students per class

Animal Tracking – Every species of animal has its own tracks. Discover their unique characteristics. Emphasis will be placed on wildlife at BNL.

Blocks and Marbles – Find a solution to an engineering problem.

Current Electricity – How is electricity generated? Create simple circuits and test materials for conductivity.

Designing "Attractive" Structures – Students use magnetic materials, geometry, and their own creativity to design and construct a structure that meets specific engineering criteria.

Magnetic Levitation (MagLev) – Discover the history and science behind MagLev vehicles. Assemble and test a prototype car. Collect and analyze data.

Measurement:

Standard Measurement – Measure various materials using scientific tools. Evaluate the need for a standard unit of measure.

The Tools We Use for Measurement – Determine which scientific measurement tools are needed to complete the challenge

Mini-Magnets – Determine which materials are magnetic. Explore invisible magnetic fields with a variety of natural and manufactured materials.

Potential and Kinetic Energy – Develop an understanding of these two states of energy using a vehicle and ramp to overcome inertia. Collect, graph, and analyze data.

Seeing the Light – How is a rainbow made? Explore the basic principles of light.

Series and Parallel Circuits – Construct series and parallel circuits to determine which is used in your home.

Sounds Around – Discover how sound is produced and how it travels. Analyze how different pitches are produced. Experience sound waves as they pass through different types of matter.

Spectroscopy – Observe the diffraction process with different light sources. Understand how scientists identify elements by the light waves they produce.

Static Electricity 101 – This program is an introduction to the structure of the atom and how static electricity occurs. Enjoy a hair-raising experience!

3D - The Third Dimension – How do we see depth in a flat object? Experience 3D sight and view our 3D visualization theatre.

Inquiries in Science

- Grades 5-6
- 60 minutes per activity
- Choose two activities
- Maximum two classes with 30 students per class

Designing "Attractive" Structures – Students use magnetic materials, geometry, and their own creativity to design and construct a structure that meets specific engineering criteria.

Magnetic Levitation (MagLev) – Discover the history and science behind MagLev vehicles. Assemble and test a prototype car. Collect and analyze data.

Spectroscopy – Observe the diffraction process with different light sources. Understand how scientists identify elements by the light waves they produce.

School Outreach Program

- Fee-based
- Grades 4-6
- 60 minute program
- Maximum 30 students per class
- Available to Suffolk County schools

Magnets to Go – This interactive program focuses on the discovery of magnetic properties and electromagnetism.

Summer Science Explorations at the Science Learning Center

- Fee-based
- Grades 4-6
- Open to individuals and student groups enrolled in educational summer programs
- Minimum group size 15, maximum 30 students
- Inquiry-based environmental and physical science activities

Grade Level	1	2	3	4	5	6
Animal Tracking	✓	✓	✓			
Blocks & Marbles	✓	✓	✓			
Current Electricity			✓	✓		
Designing "Attractive" Structures					✓	✓
Magnetic Levitation (MagLev)				✓	✓	✓
Measurement (Standard)	✓	✓				
Measurement (Tools)			✓	✓		
Mini Magnets	✓	✓	✓			
Potential & Kinetic Energy				✓		
Seeing the Light	✓	✓	✓			
Series & Parallel Circuits				✓		
Sounds Around	✓	✓	✓			
Spectroscopy				✓	✓	✓
Static Electricity				✓	✓	✓
3D – The Third Dimension			✓	✓	✓	✓
School Outreach: Magnets to Go				✓	✓	✓
Summer Science Explorations				✓	✓	✓

Further Information

- Open by appointment, Monday through Friday
- Minimum group size 15, maximum 30, up to three groups at a time
- Discoveries in Science program length is 90 minutes (three activity choices)
- Inquiries in Science program length is two hours (two activity choices)
- Uses the inquiry method of teaching
- Exploration time with exhibits included
- Addresses New York State Math, Science & Technology Standards 1, 3, 4, and 5
- Compatible with National Science Education Content Standards A, B, C, D, and G
- Visit our website for detailed program information: www.bnl.gov/education

Contact the **PORTAL TO DISCOVERY™** to schedule your visit: (631) 344-4495

Long Island STEM Hub Partner
www.listemhub.org